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TEACHER'S GUIDE TO

FLORA AND FAUNA OF ALBERTA

FLORA AND FAUNA OF ALBERTA

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PRODUCED FOR ALBERTA EDUCATION
BY KARVONEN FILMS LTD.
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TO KNOW TO UNDERSTAND TO PARTICIPATE
THE CANADIAN HERITAGE IS YOUR HERITAGE

ALBERTA HERITAGE LEARNING RESOURCES PROJECT

A PROJECT OF ALBERTA EDUCATION
FUNDED BY
THE ALBERTA HERITAGE SAVINGS AND TRUST FUND
AND

DEDICATED TO THE STUDENTS OF ALBERTA
BY THE GOVERNMENT OF ALBERTA

1979

FLORA AND FAUNA OF ALBERTA

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ACKNOWLEDGEMENTS

"Flora and Fauna of Alberta", a learning resources kit, has been produced for and under the direction of the Honourable Julian Koziak, Minister of Alberta Education. It is part of the Alberta Heritage Learning Resources Project funded by Alberta Heritage Savings and Trust Fund.

Many months of planning, consultations, revisions, and more planning, have been spent in the design, development, and production of "Flora and Fauna of Alberta". Many people have been involved and there has been much discussion, debate and research.

I wish to acknowledge the valuable assistance of the following people in Alberta Education who gave their support, were always available for consultation and made many constructive and valuable suggestions:

- Dr. Eugene A. Torgunrud, Director of Curriculum
- Dr. L. R. Tolman, Associate Director of Curriculum
- Dr. Kenneth D. Nixon, Project Director
- Elementary School Science Curriculum Ad Hoc Committee
  - Garry Popowich — Education Consultant, Chairman
  - Gwen Clark, Teacher, County of Red Deer
  - Barbara M. Yanke, Teacher, Calgary Public Schools
  - Harold Cash, Teacher, Medicine Hat Schools
  - Neil McPherson, Science Supervisor, Edmonton Public Schools
  - Don Wacowich, Teacher, Edmonton Separate Schools
- Martin Adamson, Associate Director of Curriculum (Media)
- Dr. P. A. Lamoureux, Associate Director of Curriculum

I wish to acknowledge the help of Norman Gaelick, Dennis McDonald, Terry McFadden and Dr. Martin J. Paetz of Recreation, Parks and Wildlife, Dan Stoker of Alberta Environment, and Dr. C.G. Hampson.

I also wish to acknowledge the help of Dr. G. E. Ball in making available the University of Alberta Insect Collection and assisting in the species determinations. Winfried Shenk and his staff were most helpful by allowing the use of the facilities at the Sam Livingstone Fish Hatchery in Calgary. The help of the Provincial Museum of Alberta is also gratefully acknowledged.

I am greatly indebted to the following people for supplying me with additional photographs: Alberta Agriculture, Ludo Bogaert, Chris Bruun, Canadian Forestry Services, Vince Claerhout, John Claessen, Jen and Des Bartlett (Bruce Coleman Inc.), Dr. C. G. Hampson, Edgar T. Jones, Gary R. Jones, Ken Kluchky, Stephen Krasemann, Dr. Robin Leech, Alfred H. Marsh, Dr. J. S. Nelson, Wayne Roberts, Bryan R. Shantz, Harold Storlee, W.R. Webb, E. L. Wade, Dennis C. Wighton.

I am also very grateful to Tillie Wieczorek for the clerical and secretarial work and to Marion Burke for additional secretarial assistance. My sincere thanks to my wife, Pirkko, and the rest of the Karvonen family for their immeasurable support, encouragement and assistance in obtaining the photographic material over the last eighteen years.

My association with the people on this project has been exciting, satisfying and pleasant.

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INTRODUCTION

Over the past decades, teachers, administrators, consultants, and members of the Curriculum Branch (Alberta Education), Environmental and Outdoor Education Specialist Council (ATA), Alberta Environment and Alberta School Broadcasts have expressed a need for supplementary materials in the elementary and junior high science program. In order to be meaningful and useful, it was also felt that the materials should be related primarily to our local environment. "Flora and Fauna of Alberta", printed in English and French, was primarily designed and developed to meet the objectives of the upper elementary and grade seven science curriculum. The kit also provides opportunities for integration with Language Arts and Social Studies.

The focus of the series is to help teachers and pupils become more familiar with our environment for the more familiar they become with our environment, the more they will want to protect it.

In drawing up the series, the following factors were considered:

1. It must be relevant.
2. There must be pupil involvement.
3. There must be activities that allow the pupil to use all his senses.
4. It must be interesting.
5. There must be a logical development of the inquiry and process skills (observing, recording, etc.).
6. It must be success oriented.
7. It must stimulate critical thinking.
8. The science program must be integrated with other subjects.

AIMS AND OBJECTIVES

MAJOR AIMS

A. To stimulate interest and awareness in the natural environment.
B. To help give an appreciation of the beauty and interdependence of all living things.
C. To help pupils understand the vital role of our environment for future survival.
D. To promote conservation through the wise use of our resources.
E. To stimulate critical thinking about environmental issues such as hunting, snowmobiling and spraying of pesticides.
F. To encourage pupil involvement in respecting and maintaining a healthy environment.

GENERAL OBJECTIVES

A. To help understand the characteristics of life.
  1. Observe and identify some of the characteristics common to all life.
  2. Observe and identify some of the requirements for life — food, care, etc.
  3. Observe and identify some of the characteristics found in groups of organisms — body covering, food, etc.
  4. Describe and identify some examples of how organisms are adapted to environment.
  5. Be able to observe, record and trace the development of a plant and animal.

B. To help understand classification of living things.
  1. State a basic difference between fungi and green plants.
  2. Group plants according to similarities and differences.
  3. Describe and identify how evergreens are different from other trees.
  4. Group seeds and leaves according to similarities and differences.
  5. Classify animals according to habitat, skin covering, the way they move, number of legs, food.
  6. Observe and identify some characteristics unique to birds, fish, amphibians, mammals, insects, spiders.

C. To help understand plants.
  1. Describe and identify the needs of plants — air, light, water, soil.
  2. Explain and identify plants as producers.
  3. Observe and identify the structures and functions of plants — root, stem, leaf, flower.
  4. Identify and compare the different types of roots, stems, leaves, flowers.
  5. Describe and identify how a plant reproduces — seeds, spores, runners.
  6. Describe and identify some examples of how seeds are dispersed.
  7. Describe how insects, birds or other animals help plants to reproduce.
  8. Distinguish flowering plants from cone-bearing plants.
  9. Be able to understand and explain plant growth — stages of growth and development, rings on a tree, increase in height at top.
  10. Describe and order the stages in life and decay of a plant.

11. Explain and identify the role of fungi as decomposers.

D. To help understand animals.
  1. Identify and compare the structures and functions of an insect, bird, fish, mammal, spider.
  2. Compare the food and eating habits of an insect, bird, fish, mammal, spider.
  3. Identify and compare carnivores, herbivores, omnivores.
  4. Describe and identify the type of food a bird or mammal is likely to eat given a description of its mouth parts and feet.
  5. Differentiate between animals with internal skeletons and those that have external skeletons — perch, grasshopper.
  6. Describe and identify the sensory structures of one or more animals — how an owl finds its food, how a bear finds its food.
  7. Identify and compare the structures for locomotion — how animals move, tracks.
  8. Describe and compare the stages of the life cycles of an insect, bird, fish, mammal, spider.
  9. Describe the relationship between animal parents and offspring — male, female, young.
  10. Describe and identify some examples of animal behavior — social insects, bird migration, spiders and webs, territories.
  11. Describe and compare some protective features of animals — protective coloration, scales, shell.

E. To help understand the relationship of living things to their surroundings (ecology).
  1. Describe and identify the parts of the environment (living and non-living).
  2. Describe and identify the characteristics of a habitat.
  3. Explain how weather and seasons affect animals.
  4. Describe and identify an example of a balance of nature.
  5. Observe and identify some characteristics of a forest and lake.
  6. Observe and identify some examples of a food chain.
  7. Describe and explain some examples of a food web.
  8. Describe and name a consumer and producer.
  9. Explain and identify the role of decomposers.
  10. Explain and identify the role of scavengers.
  11. Explain and identify the relationship between predator and prey.

CONTENTS

The **"Flora and Fauna of Alberta"** kit consists of:

1. A total of 620 color, 35 mm transparencies in 9 teaching units, all numbered and sequenced into trays ready for projection as follows:

Unit #1 Birds of the Forest (BF)	80 slides
Unit #2 Birds of the Lakeside (BL)	60 slides
Unit #3 Mammals (MAM)	100 slides
Unit #4 Spiders (SP)	40 slides
Unit #5 Insects (IN)	50 slides
Unit #6 Fishes (FI)	50 slides
Unit #7 Alpine Habitat (AH)	100 slides
Unit #8 Green Plants-Producers (GP)	100 slides
Unit #9 Fungi (FUN)	40 slides
	620 slides

2. A total of 20 Teacher's Guides
   a) 2 copies each of the Series Guides
   b) 2 copies each of 9 Unit Guides

   Each Unit Teacher's Guide contains background information, objectives, species list, instructions to the teacher, vocabulary, follow-up activities, concept chart, work sheet, references and an accompanying script to the slides.

3. A total of 24 Study Prints (30 cm x 42 cm). The Study Prints are referenced into the various units. Each print contains a color picture on one side and printed information for the teacher on the other.
   a) Fauna of Alberta
      # 1 Great Horned Owl
      # 2 Goshawk
      # 3 Ruffed Grouse
      # 4 Common Loon
      # 5 Snowshoe Hare
      # 6 Thirteen-lined Ground Squirrel
      # 7 Short-tailed Weasel
      # 8 Elk
      # 9 Moose
      #10 Spider
      #11 Polyphemus Moth
      #12 Northern Pike
   b) Flora of Alberta
      # 1 Shaggy Mane
      # 2 Prickly Rose
      # 3 Western Wood Lily
      # 4 Cattail
      # 5 Common Red Paint Brush

# 6 Prairie Crocus
# 7 Prickly Pear Catus
# 8 Marsh Marigold
# 9 Bunchberry
#10 Trembling Aspen
#11 Choke Cherry
#12 Alpine Meadow

16 mm Films

A series of six color motion picture films entitled **"Flora and Fauna of Alberta"** have also been referenced into the appropriate units. Although the films are not considered part of the kit and some of them are still being produced, they are tied into the same objectives. Hopefully the teachers will use them in conjunction with the units in the kit. Three of the films, Boreal Forest #1, #2, and Below the Ramparts #3 will be available through the Regional Film Centre in your zone early in 1979 and the other three, Waterfowl #4, Loon #5 and Osprey #6 by late 1979. Each film will be 15 minutes in length and contain a self-supportive optical sound track.

INSTRUCTIONS TO THE TEACHER

Basic Concepts

Each of the above units is a complete self-supportive teaching lesson or lessons. The units have been developed sequentially according to eight basic concepts which are considered an integral part of life-science program. The concepts with explanations are:

1. **General Structures and Functions** refers to the various parts of an animal or plant and actions for which the various parts are used. For example, the sharp talons (structure) of a hawk are used for catching and holding prey (function).
2. **Food Gathering and Eating** refers to the types of food an animal eats and what its eating habits are. For example, a beaver eats bark and it usually feeds at night.
3. **Locomotion** refers to how an animal moves — fly, swim, hop, walk. For example, a snowshow hare hops and runs. The tracks of an animal may also be included.
4. **Life Cycle and Development** refers to the various stages of growth of an animal or plant. For example, with the ruffed grouse it includes mating, nesting, incubating and caring for the young. With plants it includes seeds, growth, flower and fruit.
5. **Behavior** refers to special habits or behavior of an animal. For example, a male ruffed grouse drums and struts in spring and some birds nest in colonies.
6. **Protective Features** refers to special features such as protective coloration. For example, the snowshow hare turns white in the fall and as a result it is difficult to see a hare in its environment in winter.
7. **Habitat** refers to the type of area a plant or animal lives in and one or more characteristics of the area. For example, a woodpecker lives in the forest and the forest consists of such things as trees, birds, mammals, insects and fungi.
8. **Predator/Prey Relationship** refers to the relationship between an animal that kills (predator) and the animal that is eaten (prey). A coyote killing and eating a snowshoe hare is an example of a predator/prey relationship.

USE OF UNITS

Order

It is suggested that teachers first use the units in the order in which they appear above because of the sequential development of the concepts, vocabulary, follow-up activities and the organization of the subject matter. It is also suggested that teachers study the accompanying Teacher's Guide to each unit before showing the slides. Each guide has been carefully prepared to assist the teachers to prepare the pupils, to present the slides, and to follow-up with appropriate activities. An extra page of each worksheet is inserted in each Teacher's Guide to permit teachers to run off copies as required.

Re-grouping of Slides

The main reason slides are being used instead of filmstrips is to allow for a greater flexibility of use. A **Concept Chart** and suggestions as to how the slides can be re-grouped to teach a specific concept or concepts, is given in each of the units' Teacher's Guides. A Master Concept Chart, covering all units, is also included in this guide to help teachers re-group the slides in additional ways. Since each of the units focuses on basic concepts, it is possible to re-group the slides from one or more units in order to study a specific concept or concepts.

For example — suppose a teacher wants to study the concept "Structure and Function". He/she should first refer to the Master Concept Chart in this guide, and then select the numbered slides listed in the horizontial columns beside "Structure and Function". These numbered slides, and the original script along with some follow-up questions could then be another lesson. The above procedure could be repeated for each of the other concepts, such as "Food Gathering and Eating", "Locomotion", etc.

Hopefully, the teacher will also find ways to integrate the use of this kit with other subjects such as reading, language, social studies and art. Numerous suggestions are made in the follow-up activities to help teachers do just that.

Study Prints

Although the kit has primarily been prepared for the upper elementary grades, the Study Prints may be useful to the primary teachers as well. The large-size picture with the information on the back may be used in a variety of ways in the language arts program to promote discussion, questioning, reading, vocabulary development and writing.

SOURCES OF FREE MATERIAL

A. Alberta Recreation, Parks and Wildlife
Fish and Wildlife Division
Extension Services Branch
Sun Building
10363 - 108 Street
T5J 1L8

1. Teacher Resource Material — **Single** Copies Only

   The following publications are available:

   Wildlife Management Series
   #2 Goose Management in Alberta (1975)
   #4 Sheep Management in Alberta (1973)
   #5 Managing Northern Alberta's Moose Population (1974)
   #6 Land Use Planning for Conservation (1974)
   #7 Predators and Predator Management (1974)
   #8 Protection for Alberta's Endangered Wildlife (1975)
   #9 Problem Wildlife Management in Alberta (1975)

2. Pupil Resource Material — Gr. 4-7 — Classroom lots available.

   Identification Pamphlets
   Cloven-Hoofed Animals of Alberta
   Swans, Cranes and Geese of Alberta
   Diving Ducks of Alberta
   Upland Game Birds of Alberta
   Puddle Ducks of Alberta
   Weasel Family of Alberta
   Trees of Alberta
   Large Carnivores of Alberta
   Broad Winged Hawks of Alberta
   Falcons and Eagles of Alberta
   Owls of Alberta

B. Alberta Environment
12th Floor, Oxbridge Place,
Edmonton, Alberta T5K 2J6

1. Teacher Resource Material — **Single** Copies Only

   Grade 7 Teachers
   Booklet — "A Classroom Activity for Studying Alberta Mammals".
   Material for 22 problem-solving work sessions in which pupils work on their own or in pairs to identify an unknown species of animals. Can be duplicated.

   Grade 1-6 Teachers
   "Environmental Fact Finder" — 12-page booklet, cartoon format. Can be duplicated.

2. **Pupil** Resource Material — Classroom lots available.

   Grade 4-6 classes only
   "Plants — How They Improve Our Environment" — 16 page booklet, colored, comic book format.

3. For information and limited quantities of the following materials write to:

   Environment Canada
   Canadian Forestry Service,
   5320 - 122 Street,
   Edmonton, Alberta
   T6H 3S5

   "Don't Take Water For Granted"
   "Ecotour of the Trans-Canada Highway — Calgary, Alberta — Golden B.C."
   "Kananaskis Forest Experimental Station"
   "White Spruce"
   "Douglas Fir"
   "Ecotour of the Trans-Canada Highway — Calgary-Regina"
   "Trees and Forests of Waterton Lakes National Park"
   "Trees and Forests of Jasper National Park"
   "Fact Sheet on
   — Careers in Forestry"
   — Forests and Water"
   — Forestry and the Environment"
   — Fire in the Forest"
   — The Forest Tent Caterpillar"
   — Spruce Budworm"
   — From Trees to Paper"
   — Planting Shade Trees"

MASTER CONCEPT CHART

FAUNA OF ALBERTA CONCEPTS	BIRDS OF THE FOREST UNIT #1		BIRDS OF THE LAKESIDE UNIT #2	BIRDS OF THE ALPINE HABITAT UNIT #7	SPIDERS UNIT #4
	Birds of Prey Owls Hawk	Woodpeckers, Grouse Grosbeak, Flycatcher Hummingbird, Magpie			
Structure and Function	8,9,28,40,46 47,50,51	19,23,49,53,62 66,71,76,78,79	9,10,13,14,15,16 25,26,32,35,36,40 42,43,49,57	32,37,44,71,87	4,5,6,8,9,27
Food Gathering and Eating	34,37,43	24,25,55,56,57 58,59,61,67,68, 75	8,19,31,43	25,29,33,82	16,17,19,20,24 25,26,31,35,36 40
Locomotion		20,74,75,80	11,17,24,47,52	72	4
Life Cycle and Developments	5,6,7,29,30 35,42,48,52	15,16,18,54,59,60 65,69,70,71,72	5,6,7,12,16,20 21,22,23,28,29 30,34,38,39,41 45,46,48,50,53 54,55,58	10,23,24,27 28,86	10,13,14,15,39
Behavior	45	12,13,75	18,33,47,51,56 57	19,45	10,12,15,28,29 30,31,33
Protective Features	26,41	14,17	27,30,33,37,44 54,55	38,39,87,88	5,11,12,15,18 28,29,30,32,33 34,37
Habitat	4,36,39,51	11,57,65,73	4,7,12,14,15,18 26,31,37,43,47 51,56	9,10,14,26 42,71	11,12,18,31,32 33,38
Predator/Prey Relationship	10,32,33,44	63,67,77	8	25,33,82	16,17,19,20,21 22,23

MAMMALS UNIT #3			MAMMALS OF THE ALPINE HABITAT UNIT #7	INSECTS UNIT #5	FISHES UNIT #6
Carnivores Dog Bear, Weasel Families	Herbivores Cloven-hoofed Deer, Cow and Antelope Families	Mammals that Gnaw & Burrow Rabbit, Rodent Families			
59,60,64,67,74 75,79,82	84,87,91,92,96	15,23,27,28,31 33,34,35,36,46 47,50,56	12,52,76,98	4,18,21,22 26 35,36,43,45	5,7,9,11,13 17,21,23,24 26,27,28,32 33,34,36
65,76,78,80,81	83,85,86,95,99	8,10,17,23,24 25,26,28,37,39 48,49,51,54	11,46,51,57,73 78,79,81	11,21,23,24,28 29,32,34,40,41 44,47,48,49,	10,41,42,43 44,45,46,47 48,49,50
60,61,77		9,27,52	20	7,25,27	6,29,39
62,73	93,97,100	12,18,19,29,30 42,43	53,75,77,97	4,5,8,9,28,29 32,39,42,48	19
66,68,69,72	84,89,93	6,14,21,40,41	20,48,74	18,19,34,37,45	39
58,67,69,70,71 74	84,90,93,96,97	7,8,16,22,27 48,57	49,76,83,85	5,20,22,31,36 38,41,46	6,8,12,16 18,20,22,26 27,30,31,35 37,38,41
58,63,71,75,76	83,89,90,95,96 98,99	6,13,16,21,22 25,31,32,38,45 53,55	47,50,74,80,84 96,97	5,7,19,20,21 23,29,30,32,33 38,41	4,40,43
61,78	88,94	4,11,20,44		6,23,34,37,40,50	14,15,25,42

MASTER CONCEPT CHART

FLORA OF ALBERTA / CONCEPTS	GREEN PLANTS — PRODUCERS UNIT #8			GREEN PLANTS OF THE ALPINE HABITAT UNIT #7	NON-GREEN PLANTS FUNGI UNIT #9
	HERBS	SHRUBS	TREES		
Structure and Function	6,9,85,90,92 99,100	52,60,62,64 65,68,71,74 75,77	7,8,9,22,23 25,26,32,35 36,42,43,47	8,35,41,55 60,62,66,67 70,92	5,8,10,13,14 15,25,31,36 37,38,39
Life Cycle	5,81,83,86,87 96,98	51,55,56,59 60,63,66,69 72,76,78	16,17,24,27 28,29,33,38 39,44,48	21,22,40,42 56,89,90,91 99	4,6,18,24,26 32,33,35
Adaptations	84,94,95,97,99 100	14,58,79,80	30,40,46	36,43,69,92	
Habitat	4,13,18,19,88 89,91,93,95,96 97,98	12,50,54,57 61,67,70,73	10,11,15,20,21 31,34,37,41,45	4,5,6,7,17 34,54,59,61 63,64,65,68 100	9,11,12,17,19 20,21,22,23 24,27,28,29 30,32,34

Scarab Lake, Banff National Park